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OFFICE OF MYCOLOGY AND DISEASE SURVEY

Vol. XV May 1, 1931 Number 4

ENTYLOMA MELILOTI MC ALPINE IN LOUISIANA

C. W. Edgerton

For the past three years, the smut fungus, Entyloma meliloti, has been observed on the leaves of Melilotus indica in the sugar cane fields around Baton Rouge, Louisiana. In the spring of 1929, a single collection was made; in 1930 it was seen several times; while in March, 1931 it has been very abundant. Small spots which are white in color due to the presence of conidiophores and conidia develop on the leaves. Occasionally these spots may become numerous enough to cause the leaf to turn yellow and drop though this is rather unusual.

This fungus was described from Australia by McAlpine but has since been reported from Bermuda by Whetzel and Jackson. According to Dr. H. S. Jackson, to whom material was sent for identification, this is the first report of the fungus on the mainland of North America.

Melilotus indica is planted quite extensively as a winter cover crop in the sugar cane fields of Louisiana. Most of the seed comes from California.

,DOWNY MILDEW OF TOBACCO

Downy mildew (Peronospora hyoscyami D By.) has appeared in tobacco plant beds in Louisiana and Georgia. As this disease has not been reported in the United States since 1921 and is now attracting much attention, the available information is given in some detail.

Downy Mildew in Louisiana

A very severe epidemic of mildew developed in the seed beds of Perique tobacco in St. James Parish, Louisiana during the last half of March and the first half of April. The growers cover the seed beds with Palmetto leaves to protect them from the cold. This has kept the humidity high and has permitted the mildew to spread rapidly. Some growers lost a very large percentage of their plants. This is the first report of this disease in Louisiana. If it has occurred before, it has not developed sufficiently to be noticed by the growers. (C. W. Edgerton, April 15, 1931)

Downy Mildew in Georgia

The first report and specimens of the disease in Georgia were received at the Coastal Plain Experiment Station, Tifton, April 4, from a bed in Tift County. By April 13, the disease had been found in five additional beds. These were scattered over three counties, Coffee, Colquitt, and Tift, and a total distance of over 60 miles. In five of these beds the disease was discovered by Saturday, April 4. When first noticed only a small area of plants had been affected. Within a week the entire bed was diseased. On five of the beds examined April 11 and 13, not a single healthy plant could be found. Casual inspection of such a bed might readily lead to the conclusion that every plant had been killed. Careful examination of many diseased plants showed, however, that in these particular beds, infected plants had rarely been killed. The three or four larger leaves became infected, wilted down and died but the roots and buds remained alive for some time. From four of the diseased beds, some plants were set in the field and the subsequent behavior of these will be watched.

The appearance of so striking a disease, new in the experience of the growers and apparently very destructive in the tobacco plant beds nearly ready for setting, naturally aroused widespread interest and concern among tobacco growers with the result that the disease was very generally discussed and many of the growers visited the diseased beds. This general interest on the part of the growers, together with the fact that the writers visited many of the plant beds, makes it seem certain that the actual number of beds affected at that time was relatively small.

The history of the affected beds offers no explanation as to why the disease should have reached these and not others. All of the five earliest infected were well isolated from other beds, from tobacco barns and fields. Two were second year beds, three were on newly cleared land, four were planted with locally-grown seed, one with seed from North Carolina. The locally-grown seed had all been treated with silver nitrate at the Tifton Experiment Station. One diseased bed was sown from second year seed which had produced healthy plants in 1930.

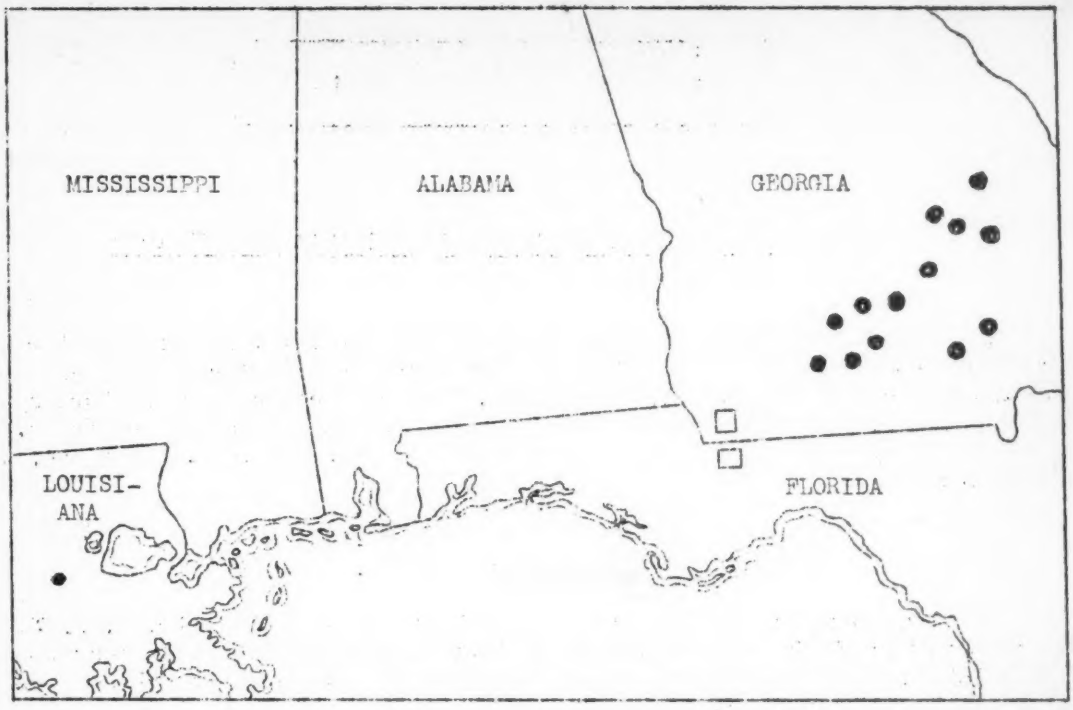

Figure 3. Outline map showing the approximate location of the tobacco seed beds with downy mildew. Squares indicate the counties in Florida and Georgia in which the disease is known to have occurred in 1921. Dots indicate the counties in Louisiana and Georgia in which the disease has been found in 1931.

The search for mildew in tobacco beds in south Georgia was continued in connection with the tobacco disease survey throughout the first two weeks in April, but up to April 15 only the five early and one apparently recent infection had been found. During April 15, 16, and 17, however, the disease appeared almost simultaneously in a number of beds in at least six different counties. To date (April 24), forty beds have been found with some evidence of the disease. These are scattered over thirteen counties, the location of which is indicated on the above map (Figure 3). Among these are a number of beds which were examined before April 13 without finding the disease. Some of these beds had not been previously visited except by the owners. The further progress of the disease in Louisiana and Georgia will be closely watched and the results of further observations published in the Reporter.

Certain resemblances between the present outbreak and that of ten years ago may be noted. In 1921 the disease appeared in Florida on four widely scattered plant beds at almost the same time (March 21) (1). There was no apparent similarity in these beds, either as to location or method of preparation. In the earlier case also the disease (2) appeared in new seed beds at more or less regular intervals up to the first of May. At first the 1921 outbreak seemed to be very serious but by the end of May (3) it was evident that the severity of the disease had been greatly over-estimated and the actual commercial loss proved to be slight.

(J. G. Gaines and N. E. Stevens)

(1) See page 40.

FRUIT DISEASES

PEACH YELLOWS AND LITTLE PEACH IN MICHIGAN IN 1930

A mimeographed report on peach disease control issued by the Bureau of Agricultural Industry of the Michigan Department of Agriculture and apparently prepared by E. C. Mandenberg, in charge of Orchard and Nursery Inspection, summarizes the results tabulated by varieties and countries. The summary shows that the total trees examined are 837,479. Of these, the following showed

Peach yellows	1,006
Little peach	4,867

Interest is added to this report by the statement of Dr. M. B. Waite, that this ratio between yellows and little peach (approximately four times as much little peach as yellows) is not far from the ratio which he found existed in the peach belt of Michigan in 1905.

Dr. Waite further states that this has always been one of the worst centers of little peach.

DEVELOPMENT OF APPLE SCAB SPORES

George L. Zundel contributes an interesting report from Pennsylvania, (April 15):

> "Apple scab control work is in full swing in Pennsylvania and we are finding that the drought of last summer had a very marked effect on the development of perithecia and spores. In that area covered by Bedford, Franklin, and lower Cumberland Counties, where the drought was severe, perithecial development is much retarded and we are only finding young asci or at most hyaline spores.
>
> "As we go north into those counties where precipitation was greater and especially where there was rain in the fall, we are finding abundant colored spores. During the week of April 6, I found colored spores as far north as northern Monroe County and northern Luzerne County. Spores were ready to shoot in southern Northumberland County the week ending April 4."

PEACH LEAF CURL IN TEXAS

We have received numerous specimens and complaints of peach leaf curl (Exoascus deformans) this spring. This is not at all surprising considering our late, cool, wet spring. (J. J. Taubenhaus, April 1)

VEGETABLE DISEASES

STORAGE ROT OF HUBBARD SQUASH

The following report was accompanied by specimens and photographs of the rot caused by Mycosphaerella citrullina:

> In Massachusetts this winter, the loss from storage rots of squash ranged from 10 per cent to 90 per cent on the farms visited, with an average perhaps of about 35 per cent of the number stored. This is reported to be about the usual loss. The disease most common in the various houses visited was Black Rot, and appeared to have originated early in storage, usually at wounds on sides and at both ends of the fruits. In some instances this rot involved the entire fruit, in others it caused only a small lesion which was followed by various soft-rotting organisms. The fungus not only digests the outer coat of the seeds but penetrates the seed coat and invades the cotyledons. Leaves collected last summer in a field from which squash fruits now have Black Rot show spots containing both the imperfect and perfect stages of Mycosphaerella citrullina. Apparently, the fungus gains entrance through wounds made at harvest and storage time, for no symptoms of fruit rot were observed in the fields.
>
> Another common but less extensive storage rot is caused by a species of Fusarium which causes a dry, spongy rot of the interior of the squash. It also infects the seed similarly to the Black Rot organism causing a pinkish stain of the seed coat rather than a black stain.
>
> Common secondary invaders in storage rots include: Rhizopus spp.; Penicillium spp.; Aspergillus sp.; Cephalothecium sp.; bacteria; and others. (O. C. Boyd, April 2)

BOTRYTIS ROT OF SHALLOT BULBS

A very severe rot of shallot bulbs has occurred in the river trucking districts in Louisiana during March and April. The outer scales first become soft and water-soaked and later dry out and become greyish to blackish. While the inner parts of the bulb and the roots show but little rot, the plants grow very slowly and produce no marketable bulbs. The affected scales are always covered with a Botrytis. The losses have been very heavy, some growers losing nearly their whole crop. That the trouble is carried over on bulbs used for planting has been demonstrated. In tests at Baton Rouge, planting bulbs from individual bulbs separately, it was observed that some bunches produced all diseased plants, while others gave all healthy plants. (C. W. Edgerton, March-April)

SOME REPORTS FROM VIRGINIA

Downy mildew (Peronospora effusa) has been present in the spinach fields throughout the winter. At the present time the percentage of infected plants varies from a trace to 10 per cent. So far the disease has not spread very much.

Sclerotinia rot of kale destroyed about 15 per cent of the plants in a part of one field. (Harold T. Cook, April 1)

CEREAL DISEASES

TAKE-ALL IN SPRING WHEAT IN IDAHO

Dr. Hurley Fellows makes the following statement:

"The take-all foot-rot (Ophiobolus graminis) has been found quite severe in the spring wheat region of southern Idaho during 1930. This is the first report of take-all in spring wheat in the United States as far as I know. Of course, this is common in Canada and Australia. This outbreak was in Jerome County."

(March 19, 1931)

MARKET PATHOLOGY

NEW YORK MARKET PATHOLOGY NOTES

Cyril O. Bratley

HONEY DEW MELONS

Several steamer shipments of melons from Chile arrived under ventilation. The temperature of the melons at unloading of one large shipment was above 75 degrees F. The average decay in four lots was about 15 per cent.

Fusarium Rot (Fusarium spp.) was the principal decay. More than half of this decay was found at the stem end of the melon. Apparently the cut stem served as the infection court from which the fungus grew down into the fruit. Although often only a small decayed area was visible at the stem, upon cutting the seed cavity would be found to be completely filled with white fluffy mycelium. In a limited number of cases the fungus had entered through the side of the melon.

Alternaria Fruit Rot (Alternaria spp.) was found in a number of instances. This decay, which usually does not penetrate deeply into the melon, afforded easy means of entrance for soft rotting organisms.

SWEET POTATOES

Rhizopus Rot (Rhizopus nigricans) was found affecting an average of 18 per cent of the potatoes in four car lot shipments examined. One car originated in Delaware, one in South Carolina, and two in North Carolina.

ASPARAGUS FROM CALIFORNIA

As reported last month, the California asparagus was arriving on the market in excellent condition. During April, most of the shipments continued to be free from decay, however, an occasional car showed a very high percentage of mouldy bunches. One shipment showed 75 per cent and several showed more than 25 per cent of the bunches affected.

Fusarium Rot (Fusarium spp.) was the most prevalent decay. It was usually found on the tip which would soon be covered with a fluffy growth of mycelium. An occasional lesion was found on the stalks.

Blue Mold Rot (Penicillium spp.) affected 25 per cent of the cut stems in one lot. It was also found following wounds made by the strings when the asparagus was bunched.

Bacterial Soft Rot (Bacillus spp.) and Gray Mold Rot (Botrytis spp.) were each responsible for smaller amounts of the loss in transit.

APPLES FROM HOOD RIVER, OREGON

Three cars recently examined have shown greater than normal amounts of Bull's Eye Rot (caused by either Gloeosporium perennans or Neofabraea malicorticis). Two cars were of the Yellow Newtown variety and one was Arkansas Black.

SOUTH DAKOTA

Earnest A. Walker

SOFT ROT OF FLORIDA STRAWBERRIES

The berries are of good size and fully pollinated. Nearly every box in each crate shows one to many berries rotted by Rhizopus nigricans. I would estimate 10 per cent spoilage as received from Florida picking. (April 11)

PLANT QUARANTINE NOTES

H. S. Dean

Port interceptions:

Aplanobacter michiganense on tomato from Sinaloa, Mexico (in cargo), intercepted at Nogales, Ariz., March 11 and 12 by Mr. G. C. Martin, and March 16, by Mr. C. E. Bellis. Det.: Miss M. K. Bryan. (See Reporter, April 1, 1931, page 20)

Coniothyrium diplodiella on grape cuttings from Italy (in mail), intercepted at Philadelphia, Pa., March 12, 1931, by Mr. A. B. Wells. Det.: Mr. G. H. Martin.

Erysiphe graminis on grass among seed of Lathyrus sp. from Naggar, India (in mail), intercepted at Washington, D. C., March 18, 1931, by Mr. D. P. Limber. Det.: Mr. D. P. Limber.

Helminthosporium oryzae on rice straw and spikes used as packing material about breakable merchandise from Japan (in cargo), intercepted at Philadelphia, Pa., March 5, 1931, by Mr. M. Kisliuk, Jr. Det.: Mr. G. H. Martin.

Nematosporangium aphanidermatum (Pythium aphanidermatum) on Raphanus sp. from Japan (in ship's stores), intercepted at Philadelphia, Pa., February 23, 1931, by Mr. W. J. Ehinger. Det.: Mr. G. H. Martin.

Phomopsis coooes on coconut from Cuba (in baggage), intercepted at Philadelphia, Pa., March 3, 1931, by Mr. M. Kisliuk, Jr. Det.: Mr. G. H. Martin.

Rhytisma acerinum on Acer carpinifolium from Yamamoto, near Kobe, Japan (in mail), intercepted at Washington, D. C., March 12, 1931, by Mr. D. P. Limber. Det.: Mr. G. H. Martin.

Sphaeronema sp. on Phlox Chef d'Or from France (in mail), intercepted at Washington, D. C., March 13, 1931, by Mr. D. P. Limber. Det.: Mr. D. P. Limber.

Stemphyllium allii on garlic from Italy (in ship's stores), intercepted at Philadelphia, Pa., March 19, 1931, by Mr. A. B. Wells. Det.: Mr. G. H. Martin.

Aphelenchus fragariae and A. parietinus in Fragaria var. Royal Sovereign from England (in mail), intercepted at Washington, D. C., March 27, 1931, by Mr. W. B. Wood. Det.: Dr. G. Steiner.

Caconema radicicola in Caryopteris mongolensis from France (in cargo, intercepted at Washington, D. C., March 12, 1931, by Mr. D. P. Limber; in potato from Dutch Guiana (in ship's stores); intercepted at New Orleans, La., March 14, 1931, by Mr. W. H. Baskin; in potato from Chile (in ship's stores), intercepted at Wilmington, N. C., March 20, 1931, by Mr. R. W. Woodbury. Det.: Dr. G. Steiner. (Caryopteris is a previously unrecorded host for this parasite; the countries of Dutch Guiana and Chile were previously unrecorded for the distribution of this disease of potatoes.)

Neotylenchus abulbosus (in ships' stores) in carrot from England, intercepted at Philadelphia, Pa., February 27, 1931, by Mr. A. B. Wells; in potato from Holland, at Philadelphia, March 7, 1931, by Mr. W. J. Ehinger; and three times in potato from Holland, at Philadelphia, March 13, 1931, by Messrs. Wells and Kisliuk. Det.: Dr. G. Steiner.

Tylenchus dipsaci in potatoes (in ships' stores) from France and Italy, intercepted at Philadelphia, Pa., March 18 and 24, 1931, respectively, by Mr. J. A. Ramos. Det.: Dr. G. Steiner. These are the first Plant Quarantine and Control Administration interception records of this disease of potatoes from the countries named.

Tylenchus tritici in Triticum sp. from Damascus, Syria (in mail), intercepted at Washington, D. C., March 25, 1931, by Mr. D. P. Limber. Det.: Dr. G. Steiner.

Some specimens collected by inspectors in the vicinity of their respective stations:

Cerotelium canavaliae on Canavalia sp. collected in the field at Rio Piedras, P. R., January 12, 1931, by Mr. A. S. Mills and C. G. Anderson. Det: Mr. R. W. Davidson.

Gloeosporium berberidis on Berberis nervosa leaves, collected at Lake Isabel Snohomish Co., Washington, February 22, 1931, by Mr. W. H. Wheeler. Det.: Mr. G. H. Martin.

Phyllosticta gaultheriae on Gaultheria sp. leaves, collected at Lake Isabel, Snohomish Co., Washington, February 22, 1931, by Mr. W. H. Wheeler, Det.: Mr. G. H. Martin.

Puccinia porphyrogenita on Cornus canadensis, collected on trail to Lake Isabel, Snohomish Co., Washington, February 22, 1931, by Mr. M. J. Forsell. Det.: Mr. R. W. Davidson.

Uromyces dolicholi on Cajanus indicus, collected in the field at Corozal, P. R., January 31, 1931, by Messrs. Mills and Anderson. Det.: Mr. R. W. Davidson.

Literature cited under downy mildew of tobacco (page 32):

1. Smith, E. F., and R. E. B. McKenney. A dangerous tobacco disease appears in the United States. U. S. Dept. Agr. Dept. Circ. 174. 6 pp. April, 1921.

2. Burger, O. F., and H. C. Parham. Peronospora disease of tobacco. Quart. Bull. Florida State Pl. Board 5: 163-167. July, 1921.

3. Smith, E. F., and R. E. B. McKenney. The present status of the tobacco blue-mold (Peronospora) disease in the Georgia-Florida district. U. S. Dept. Agr. Dept. Circ. 181. 4 pp. June 7, 1921.